

Barefoot Bytes

Ages 5-7

Our little bytes of learning fun have been designed to encourage pupil engagement with collaborative activities. These are easy to do and can be used in school and at home tech-free, using pens, paper and other everyday items to teach computational thinking skills and concepts, encompassing a range of different subjects.

Activity

Instruction

Support

Stretch

We're back together



Pattern

Share a selection of poems with repetition in verses, or rhyming between words. Can pupils spot the patterns these poems use? You can then easily create a class poem using a repeating pattern. Ask each pupil to write one line about another pupil saying what they missed about them whilst not in school (assign pupils to ensure all pupils are included), followed by the line 'But, now we're back together'.

For example: *I missed Abdullah always smiling and helping Miss with the fruit, but now we're back together.*

Combine these to create your own class poem about being back together as a class.

Provide a writing frame for less confident pupils.

Can pupils spot any additional patterns in the class poem? Do some words rhyme, for example? Are there any patterns in what pupils missed about each other?

Friendship bracelets



Algorithms

Collaborating

Pattern



Pupils work in pairs to design and create friendship bracelets (you can use threading beads, stacking cups, blocks or just pen and paper). Each pupil creates a simple repeating pattern (keeping it secret from their partner) e.g red, blue, yellow and repeat. They share instructions for replicating it with their partner. They need to be precise in their instructions and their partner has to listen carefully. Once complete, the two pupils compare their (hopefully identical) friendship bracelets!

You will also need threading beads, stacking cups and other bracelet making materials.

A simple paper based template with 10 beads and a limit of 2 different colours can help support pupils.

Can pupils create a more complex pattern? Can pupils use "repeat" in their instructions?

Tallest tower



Logic

Evaluation



Working in groups, pupils collaborate to make the tallest tower possible from sheets of newspaper. If social distancing prevents working together on a single structure, pupils could build individual sections and combine these into the final tower.

Before building, explore pictures of tall structures, such as the Eiffel Tower, and discuss which shape pupils regularly see in the structure – triangles, as these make the structure stronger.

As pupils are building their towers encourage them to share their reasoning for their approach. Pupils can evaluate their finished tower and that of others. Which elements of the construction were most/least successful and why do they think this was?

You will also need newspaper, sticky tape, scissors.

Less confident pupils could be given an example tower and start by modifying this.

Can pupils spot patterns across the groups in what made towers more or less successful?

Wanna be in my band?



Algorithms

Collaborating

Evaluation



Each table makes a different home made instrument, such as banging glue sticks on the table, elastic bands on tissue boxes, straws with slits in, etc. Each table writes an algorithm to compose a song using the instruments (e.g. bang glue sticks x 2, rest, pluck tissue box x 4, blow straw x 2, rest, etc) then conducts the other tables. Tables evaluate their compositions, improve them, then conduct again. Further instruments or song verses can be added.

You will also need materials for making musical instruments.

Pupils could work with a reduced number of instruments and/or no rests.

Pupils could add additional detail (e.g. pluck band hard, blow straw softly, etc)

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Collaborative crazy characters



Algorithms Decomposition Evaluation

In small groups pupils individually write an algorithm for drawing different parts of a group crazy character; assign pupils to the head, body, arms etc.

E.g. Draw a square head with 3 triangular eyes and...

Each group then reads out their algorithms for the class to follow who draw their complete collaborative crazy character. Are all the drawings from pupils in the class the same?

If not, why not? Discuss which parts of the algorithm could be made more precise and how?

Pupils can be given key vocabulary cards to support them writing their algorithm.

Can pupils add additional detail to their algorithms to make them even more precise? Can they spot a pattern in the detail which is required e.g. Always need size, shape, location...

Flexible learning

Now wash your hands



Algorithms Decomposition

Hand washing remains important so challenge your pupils to write a set of instructions, an algorithm, for how to wash their hands thoroughly. They could create this as a poster for the classroom or a postcard to take home. Can they follow the instructions?

Are the instructions precise enough?

Test and debug their algorithms by following them as a class.

Download our ready made poster for your classroom.

Pupils could speak their algorithm instead of writing it down, or put a series of image cards in the correct order.

Can pupils add extra detail to their algorithm to make it even more precise?

Flexible learning

Time to dance



Decomposition Evaluation

Working in groups, challenge pupils to create a dance routine to celebrate returning to school and seeing their friends. Ask pupils to decompose the routine into steps and write an algorithm for it – this could simply be a sequence of drawings showing the various dance moves in order.

Groups can then use their algorithms to teach their dance to the rest of the class.

Provide pupils with drawings of dance moves e.g. wave hands, spin around, to support them in creating their algorithm.

Can pupils introduce repetition into their algorithm?

Flexible learning

Shared story



Algorithms Decomposition

In a small group, retell a familiar story ('The Enormous Turnip' works well for example). Work together to construct a story plan. Pupils take ownership of a different part of the story and create the text and images to accompany it. Piece the whole story back together and share it as a group – does it make sense? Do you need to make any changes or additions?

Pupils could speak or act out their part of the story instead of writing it.

Can pupils add extra detail to their part of the story?

Flexible learning